

Application No. 10/605,280  
Docket No. A3-1662  
Amendment dated November 15, 2005  
Reply to Office Action of August 16, 2005

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**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application.

**Listing of Claims:**

Claim 1 (Currently amended): A process of forming an end of a tube having at least one internal surface feature on an internal circumference of the tube and projecting into an internal passage defined by the tube, the process comprising the steps of:

moving an external die and a mandrel in unison so as to force the  
~~forcing an~~ external die over the end of the tube and simultaneously insert the  
~~inserting a~~ mandrel through the internal passage within the end of the tube, the external die reducing the outer diameter of the end of the tube so as to define a reduced-diameter portion at the end of the tube, the mandrel being positioned farther into the internal passage than the reduced-diameter portion of the tube; and then

while the end of the tube remains within the external die, withdrawing the mandrel from the internal passage and through the reduced-diameter portion of the tube to eliminate at least a portion of the internal surface feature.

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Claim 2 (Original): The process according to claim 1, wherein the portion of the internal surface feature is eliminated by deformation without physically removing from the tube the material defining the internal surface feature.

Claim 3 (Currently amended): The process according to claim 1, wherein the external die and the mandrel are components of a tool assembly, the tool assembly further comprising a holder having a bore in which the external die is received and reciprocable in an axial direction of the bore, the mandrel is mounted ~~being mounted~~ within the tool assembly so as to be reciprocable relative to the external die, and the holder, the external die, and the mandrel move in unison during the moving step.

Claim 4 (Currently amended): The process according to claim 3, wherein the mandrel is attached to the holder so as not to reciprocate ~~be reciprocable~~ relative to the holder during the moving and withdrawing steps.

Claim 5 (Currently amended): The process according to claim 4, wherein the mandrel is reciprocably received in a bore defined by the external die, the mandrel moves in unison with the bore during the moving step, and the

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mandrel reciprocates within the bore during the withdrawing step.

Claim 6 (Currently amended): The process according to claim 1, wherein the external die comprises a chamfer against which reduction of the end of the tube occurs during the moving ~~forcing~~ step, and the mandrel is circumscribed by the chamfer during the moving step. ~~step of forcing the external die over the end of the tube.~~

Claim 7 (Currently amended): The process according to claim 1, wherein the mandrel does not interfere with the at least one internal surface feature within the end of the tube during the moving step. ~~step of forcing the external die over the end of the tube.~~

Claim 8 (Original): The process according to claim 1, wherein the end of the tube remains within the external die during the withdrawing step solely as a result of interference between the die and the reduced-diameter portion of the tube.

Claim 9 (Currently amended): The process according to claim 1, wherein the moving ~~forcing~~ step is performed as a single impact between the

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external die and the end of the tube.

Claim 10 (Currently amended): The process according to claim 1, wherein the moving ~~forcing~~ step is performed as multiple impacts between the external die and the end of the tube.

Claim 11 (Original): The process according to claim 1, wherein the tube is a heat exchanger tube.

Claim 12 (Currently amended): A process of forming an end of a heat exchanger tube having multiple internal enhancements on an internal circumference of the tube and projecting into an internal passage defined by internal circumference of the tube, the process comprising the steps of:  
moving an external die and a mandrel in unison so as to force the  
~~forcing an~~ external die over the end of the tube and simultaneously insert the  
~~inserting a~~ mandrel through the internal passage within the end of the tube, the external die reducing the outer diameter of the end of the tube so as to define a reduced-diameter portion at the end of the tube, the mandrel being positioned farther into the internal passage than the reduced-diameter portion of the tube throughout the moving step; ~~forcing step~~; and then

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while the end of the tube remains within the external die, withdrawing the mandrel from the internal passage and through the reduced-diameter portion of the tube to eliminate the internal enhancements by deformation without physically removing from the tube the material defining the internal enhancements.

Claim 13 (Currently amended): The process according to claim 12, wherein the external die and the mandrel are components of a tool assembly, the tool assembly further comprising a holder having a bore in which the external die is received and reciprocable in an axial direction of the bore, the mandrel is mounted ~~being mounted~~ within the tool assembly so as to be reciprocable relative to the external die, and the holder, the external die, and the mandrel move in unison during the moving step.

Claim 14 (Currently amended): The process according to claim 13, wherein the mandrel is attached to the holder so as not to reciprocate ~~be reciprocable~~ relative to the holder during the moving and withdrawing steps.

Claim 15 (Currently amended): The process according to claim 14, wherein the mandrel is reciprocably received in a bore defined by the external

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die, the mandrel moves in unison with the bore during the moving step, and the mandrel reciprocates within the bore during the withdrawing step.

Claim 16 (Original): The process according to claim 15, wherein the end of the tube remains within the external die at the initiation of the withdrawing step solely as a result of interference between the die and the reduced-diameter portion of the tube, and the mandrel forces the reduced-diameter portion of the tube into greater contact with the die as the mandrel is withdrawn through the reduced-diameter portion of the tube so that the end of the tube remains within the die throughout the withdrawing step.

Claim 17 (Currently amended): The process according to claim 12, wherein the external die comprises a chamfer against which reduction of the end of the tube occurs during the moving ~~forcing~~ step, and the mandrel is circumscribed by the chamfer during the moving step. ~~step of forcing the external die over the end of the tube.~~

Claim 18 (Currently amended): The process according to claim 12, wherein the mandrel does not interfere with the internal enhancements within the end of the tube during the moving step. ~~step of forcing the external die over~~

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~~the end of the tube.~~

Claim 19 (Currently amended): The process according to claim 12, wherein the moving ~~forcing~~ step is performed as a single impact between the external die and the end of the tube.

Claim 20 (Currently amended): The process according to claim 12, wherein the moving ~~forcing~~ step is performed as multiple impacts between the external die and the end of the tube.